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ABSTRACT

This study used a case study design using both quantitative and qualitative data to document school improvement efforts at one middle school. The findings developed a portrait of the school, and its students, staff, and climate, and made it possible to identify areas for improvement. Data were collected through 44 classroom observations in 2 school years; 34 interviews with teachers, students, staff, and administrators; 6 teacher and 15 student focus groups; and a review of school documents. Data present a profile of this school of approximately 422 students, its teachers and staff, and the educational climate. After the school portrait was presented to teachers, they agreed on these areas that need improvement: (1) better instructional implementation; (2) better curriculum articulation; (3) improved school climate; (4) reduced pace of reform; (5) attention to changing student body characteristics; (6) improvement of the nonteaching work load; and (7) better communication. Although the academic achievement level of the school was relatively high, evidence suggested that this was due in part to student mobility. Also noted was a concern over the effectiveness of leadership from the principal. (Contains 12 figures, 13 tables, and 31 references.) (SLD)

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Painting a School Portrait with Data:

One Middle School's Attempt at School Improvement

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Painting a School Portrait with Data: One Middle School's Attempt at School Improvement

"Most American schools are not excellent, just ordinary. Imagine that they could become ordinarily excellent" (Clark, Lotto, & Astuto, 1984, p.66).

Introduction

The accountability movement has pressured educational institutions into producing "effects," "impacts," and "outcomes." Current state policies and comprehensive school accountability systems emphasize policymakers' beliefs that schools may be evaluated in terms of their effectiveness in educating their students. As a result, school personnel are being compelled to change their professional practice in various ways and to focus on school improvement initiatives. The stakes are high, including sanctions or rewards for performance.

Many and varied school improvement efforts and initiatives have been introduced since the publication of *A Nation at Risk* (1983.) Indeed, the last 20 years have witnessed an unparalleled effort to improve this nation's schools and raise student achievement in the elementary and secondary grades. New content standards, increased requirements for high school graduation, reduced class size, end-of-course examinations and other statewide testing and assessment, the attention on "highly qualified teachers," and performance-based accountability requirements for schools—these are a few of the prominent state and national initiatives in school reform.

O'Day (2002) acknowledged that "Current school accountability policies, such as public reporting of student test scores, assume that, armed with accurate information about the achievement of students in the school, stakeholders and participants in the instructional process will take whatever action is necessary to improve learning outcomes" (p. 296). In a

similar vein Bernhardt (1998) reminded us of the importance of the use of data and data-driven decision making when she noted,

> We, in education, have a history of adopting one innovation after another as they are introduced. Very few of us take the time to understand the needs of the children we serve, the impact that our current processes have on children, the root causes of recurring problems, the solutions to alleviate the problems in the long run, and how to measure and analyze impacts after implementing new approaches. (p.2)

In this paper we employed a case study design using both qualitative and quantitative data to document school improvement efforts at one middle school. At the request of that school we have avoided including any information that would reveal its identity. The questions investigated include: (1) What portrait is painted by data available at this middle school in relation to faculty, students, classroom, and school climate?, (2) Based on this portrait, what areas are targeted for improvement initiatives?, and (3) What are the impediments to school improvement at this middle school?

Review of Literature

Defining School Improvement

In *Improving Schools* (OFSTED, 1994) school improvement is defined as the ways in which schools: raise standards, enhance quality, increase efficiency, and achieve greater success in promoting pupils' spiritual, moral, social, and cultural development (the ethos of the school). Hopkins, West, and Ainscow (1996) take a wider view of school improvement, seeing it as "enhancing student outcomes as well as strengthening the school's capacity for managing improving initiatives" (p.1). Van Velzen, Miles, Ekholm, and Robin (1985) defined school improvement as "a systematic, sustained effort aimed at change in learning and other related internal conditions in…[a] school, with the ultimate aim of accomplishing educational goals more effectively" (p. 48).

What Professional Organizations Have to Say About School Improvement

School improvement has been addressed by a number of professional organizations and consortiums. Included among the National Association of Elementary School Principals (NAESP) proficiencies for elementary and middle school principals is the following: "Conducts needs assessment and uses data to make decisions and to plan for school improvement" (1986, p.6). The Interstate School Leaders Licensure Consortium (ISLLC) included school improvement as part of Standard 1 and notes that principals should value "continuous school improvement" (p.10) and ensure that "the school community is involved in school improvement efforts" (Council of Chief State School Officers, 1996, p. 11) in addition to understanding "information sources, data collection, and data analysis strategies" (p.10).

In 1998 the National Study of School Evaluation (NSSE) published a comprehensive guide for data-driven and research-based school improvement planning. This guide provides a six-step model that includes: (a) developing the school profile, (b) defining beliefs and mission, (c) identifying desired results for student learning, (d) analyzing instructional and organizational effectiveness, (e) developing an action plan, and (f) implementing the plan and documenting results.

Data-Driven Decision Making

Educators are accustomed to viewing data as something that is reported to some other source, not as information useful for guiding their own efforts at improvement. The basic information collected by schools—attendance, disciplinary actions, grades, courses taken, dropout rates and high school completion—is stored in administrative records, far removed

from daily classroom practice and the business of school improvement (Hoachlander, Levesque, & Mandel, 1998). Hoachlander, Alt, and Beltranena (2001) concluded:

> Evaluation is done to schools, mainly instigated by external sources and conducted by outside experts; evaluation is not done by schools as part of an ongoing process of self-reflection, analysis and development. Consequently, schools operate with surprisingly little information about how they are performing and what the results might mean for altering curriculum, teaching practices, scheduling and other aspects of instructional organization, student support services, staff development and so on. (p.37)

Recent research indicates that school principals and teachers must become familiar with and use existing school data to make sound educational decisions about teaching and learning (Fitch & Malcom, 1998; McNamara, 1996). In *Schools and Data* Creighton (2001) acknowledged that

> We are realizing that meaningful information can be gained only from a proper analysis of data and that good decisions are based on this thoughtful process of inquiry and analysis. School districts across the nation collect and maintain many forms of educational data (e.g., attendance rates, standardized and criterion-referenced test scores); however, most schools use the collection of data to satisfy administrative requirements rather than to assess and evaluate school improvement. (p.xi)

Creighton continued, "Principals and teachers must possess an understanding of data analysis and ways to use this analysis to improve teaching and learning in the classroom" (p. xii).

Bernhardt (1998) in *Data Analysis for Comprehensive Schoolwide Improvement* noted that "nearly every school in every state throughout the nation is attempting to reform, restructure, reengineer, or rethink the business of 'school.' What separates successful schools from those that will not be successful is the use of one, often neglected, essential element—data" (p.1). She continues "schools that analyze and utilize information about their school communities make better decisions about not only what to change, but how to institutionalize systemic change" (p.1). Bernhardt noted that data can help us:

> ...replace hunches and hypotheses with facts concerning what changes are needed; identify the root causes of problems, so we can solve the problem and not the symptom;... know if goals are being accomplished;... understand the impact of efforts, processes, and programs; ...continuously improve all aspects of the learning organization. (p.2)

Typically, schools collect data to: improve instruction, provide students with feedback on their performance, measure program success and effectiveness, understand if what we are doing is making a difference, make sure that students do not fall through the cracks, guide curriculum development and revision, promote accountability, and meet federal and state requirements. Bernhardt (1998) calls for multiple sources of data to be collected on multiple occasions from multiple perspectives. These data would include a wide variety of demographic data (enrollment, attendance, ethnicity, gender, socioeconomic status, number of students with special needs, number of graduates, drop-out rate, language proficiency); perceptions of faculty, students, parents, administration, and the community (values and beliefs, climate and culture, assessment of learning environment); measures of student learning (standardized test scores, teacher observations, grades, authentic assessments); and descriptions of school programs and processes (advisory, instructional strategies, scheduling, classroom practices).

In discussing the attributes of Effective Schools Research-based programs of school improvement the importance of data-driven evidence is emphasized. Lezotte and Bancroft (1985) wrote, "data driven evidence is useful for planned change. It provides answers that transcend more subjective professional judgments. In addition, such a model, in place, offers flexibility for attending to what is important and necessary" (p. 304).

In discussing what types of data are most useful, Wade (2001) noted that "schools across the country are settling on the idea that carefully collected and analyzed data represent

the key to improvement in education" (p.1). He offers the following list for consideration: student outcome data which includes measurements of student performance such as standardized test results, grade point averages; student demographic data; data that provide insights about parents', students', teachers', and administrators' perceptions; and data about programs, instructional strategies, and classroom practices.

Bernhardt (1998) also identified some of the reasons that schools may not use data. They include: the work culture does not focus on data; few people at schools and districts are adequately trained to gather and analyze data, or establish and maintain databases; gathering data is perceived to be a waste of time; there is a perception that data are collected for the purposes of other sources; and there are not enough good examples of schools gathering, maintaining, and benefiting from the use of data (p.5).

School Improvement

School effectiveness and school improvement research have contributed a good deal of both support and pressure for transforming school systems (Bredeson, 1989; Clune & White, 1988; Murphy 1990). Two of the major findings from these complimentary lines of research (see Clark, Lotto, & Astuto, 1984) are that school improvement is an integrated rather than a piecemeal activity and that improvement occurs on a school-by-school basis. In building on these conclusions, it has been argued that each school should be provided with substantial autonomy and should become "the fundamental decision making unit within the educational system" (Guthrie, 1986, p.306). Fundamentally, the more control a school has over those aspects of its organization that affect its performance—the articulation of goals, the selection and management of teachers, the specification of policies—the more likely it is to exhibit the qualities that have been found to promote effectiveness.

Clark, Lotto, and Astuto (1984) in their comparative analysis of the effective schools and school improvement literatures noted that both traditions of educational research have examined leadership, school climate, teachers, students, curricular materials, patterns of curricular organization, instructional strategies, financial resources, facilities and equipment, and parental and community involvement. What is different for these two traditions, according to Clark et al., is that school effectiveness researchers have been interested in student achievement as an outcome variable while school improvement researchers have been more interested in a school's or school system's level of adoption of an innovation. One could argue that with the recent wave of accountability, with school report cards and sanctions on poorly performing schools, that this distinction has blurred substantially.

Clark et al. (1984) offer readers four propositions that summarize the research on school improvement. These include:

> Proposition 1—Public schools, individual classrooms, and school systems can and do improve, and factors facilitating school improvement are neither so exotic, unusual, or expensive that they are beyond the grasp of extraordinary leaders in ordinary situations.
>
> Proposition 2—People matter most in school improvement programs:
>
> (a) Teachers can and will implement new practices and programs given active leadership from building and central office administrators, a chance for planning the implementation process, appropriate training, opportunities for interaction, breathing space to try and fail, and continuous assistance and support;

(b) Building level administrators make a difference in school improvement programs by establishing a climate of expectations that teachers will successfully improve practice and by providing on-site coordination, communication, assistance, and support;

(c) District level administration affect school improvement programs by exhibiting active backing in the form of communicated expectations for success, psychological support, needed resources, and local facilitation assistance; and

(d) External assisters are more effective at the school level providing concrete and practical assistance on implementation issues, such as planning, scheduling, problem solving, and follow through.

Proposition 3—An innovation is more likely to be adopted and implemented if it is perceived as having relative advantage, compatibility, simplicity, and legitimacy. Implementation is more effective when the innovation focuses on specific needs and demonstrates clarity in purpose and techniques.

Proposition 4—Specific resources are necessary to support effective school improvement programs:

(a) Staff development programs that are task-specific and provide on-going, continuous assistance and support; and

(b) Monetary resources that are adequate to provide the people, materials, and time needed in the program. (p.59)

Clark et al. concluded, "The (school improvement) research is clear that external facilitators, internal facilitators, materials, time for teacher planning and interaction, and time for teachers to implement the innovation are important components of a successful school improvement program" (p.58).

Lezotte and Bancroft (1985) studied school improvement based on effective schools research. They noted that before proceeding with any school improvement process or program that the following questions must be asked, "What is our motive for doing this? What are our expectations?" In an effort to unlock continuous school improvement, Bernauer (2002) discussed five key issues. These include: (a) effective leadership, (b) teachers at the center of improvement, (c) a limited number of outcomes or achievement goals, (d) the use of action research as staff development, and (e) continuous assessment.

In discussing the potential impact of accountability-based interventions on school improvements, O'Day (2002) noted that accountability mechanisms will be successful in improving the functioning of school organizations to the extent that those interventions are able to: (a) generate and focus attention on information relevant to teaching and learning, (b) motivate educators and others to attend to relevant information and to expend the effort necessary to augment or change strategies in response to this information, (c) develop the knowledge and skills to promote valid interpretation of information and appropriate attribution of causality at both the individual and system level, and (d) allocate resources where they are most needed (see p. 304).

Conceptual Framework

The social systems movement in organizational theory laid the foundation for the theoretical framework used in this study. Early work by sociologists Parsons, Bales and Shils

(1953) postulated that all social systems have four functional problems to overcome. The dimensions are adaptive, instrumental, expressive, and integrative in nature and involve the following coping mechanisms from each system: (a) adapting to or accommodating to a demand from its environment, (b) attaining goals that have been set, (c) integrating and maintaining itself as an entity, and (d) maintaining and preserving its motivation and culture. To solve these critical issues, Parsons (1958) suggested that schools exert three levels of control over activities—technical, managerial, and institutional. The technical level is concerned with the delivery of educational service—teaching and learning. The managerial level motivates, mediates, and coordinates the technical level. And the institutional level connects the school to its surrounding environment. From Parsons' (1958) perspective, all organizations, including schools, need to have these three levels of control to some degree in order to solve the four basic problems of social systems. A healthy school, therefore, is one in which the technical, managerial, and institutional levels work in harmony.

Continuing this work, Tagiuri (1968), along with Hoy and Miskel (1996), defined the organizational climate of a school as the set of internal characteristics that distinguishes one school from another and influences the behavior of its members. In more specific terms, school climate is the relatively stable property of the school environment that is experienced by participants, affects their behavior, and is based on their collective perceptions of behavior in schools. Hoy and Hannum (1997) posited that healthy schools "successfully adapt to their environments, achieve their goals, and infuse common values and solidarity into the teacher work group" (p.293). A number of studies by other researchers and reformers have also successfully linked healthy school climates to improved learning environments and increased student achievement (Bossert, 1988; Grosin, 1991; Purkey & Smith, 1983; Stedman, 1987).

In the current study, the theoretical framework for organizational health of middle schools is based on six dimensions of climate that define the health and general well-being of relations in middle schools between teachers and students, teachers and administrators, teachers and teachers, and the school and community. Two aspects of teacher and student behaviors— academic emphasis and teacher affiliation—chart important aspects at the technical level; three aspects of principal behavior—collegial leadership, resource support, and principal influence—outline important administrative functions at the managerial level; and one aspect of the school-environment relationship—institutional integrity—is explored at the institutional level. Each of these dimensions is defined in Table 1.

Methodology

Data Collection Procedures

Mindful of the need for multiple sources of data (demographic, achievement, climate, etc.) representing varied perspectives (students, teachers, and administrators) both quantitative and qualitative data were collected during a two-year period, January 2001 through December 2002. Data were collected from classroom observations; teacher, student, staff, and administrator interviews; student and teacher focus groups; and related school documents. Parent and community input was not included in the database. Specifically, data sources included the following.

Table 1

Index of Organizational Health

Level	*Emphasis*	*Description*
Technical	Academic	The extent to which the school is driven by a quest for academic excellence. High but achievable academic goals are set for students, the learning environment is orderly and serious, teachers believe in their students' ability to achieve, and students work hard and respect those who do well academically.
Technical	Teacher Affiliation	A sense of friendliness and strong affiliation with the school. Teachers feel good about each other, their job, and their students. They are committed to both their students and their colleagues and accomplish their jobs with enthusiasm.
Managerial	Collegial Leadership	Principal behavior that is friendly, supportive, open, and guided by norms of equality. But, at the same time, the principal sets the tone for high performance by letting people know what is expected of them.
Managerial	Resource Support	Refers primarily to the availability of classroom supplies and instructional materials. Sufficient materials are readily available; indeed, extra materials are supplied if requested.
Managerial	Principal Influence	The principal's ability to influence the actions of superiors. Influential principals are persuasive with superiors, get additional consideration, and proceed relatively unimpeded by the hierarchy.
Institutional	Institutional Integrity	The degree to which the school can cope with its environment in a way that maintains the educational integrity of its programs. Teachers are protected from unreasonable community and parental demands.

Note: Adapted from Hoy & Hannum, 1997, p.294

Classroom Observations. To identify current practices and overall classroom climate, 32 classroom observations were conducted in 2001 with an additional 12 in 2002 using the *Classroom Observation Protocol* and the *Instructional Practices Inventory* (Valentine & Painter, 1998). The observation protocol was designed mindful of current research on middle level curriculum, instruction, and assessment. Specifically the areas of

lesson design, implementation, subject content, and classroom culture were assessed with a final capsule description of the quality of the lesson. Observations lasted approximately 45-50 minutes and were conducted in each of the three grade levels, 6-8, in exploratory classrooms, and in a variety of learning-assisted classrooms.

Interviews. Initially, 19 interviews were conducted according to the following breakdown: 15 with teachers, and one each with school principal, assistant-principal, counselor, and school psychologist. An additional 15 were conducted in 2002 for a total of 34 interviews. In 2001 the interview protocol was designed to probe the experiences of teachers in the following areas: instructional leadership, professional development, student achievement, student work, developmental appropriateness of curriculum and instructional strategies, classroom culture, and student diversity. In 2002 the interview protocols for both teachers and students were adjusted to probe areas that were identified to be problematic in 2001, specifically school climate, curriculum development and implementation, and the leadership of the principal.

Focus Group Interviews. Twenty-one focus group interviews were conducted with both teachers and students. Six focus groups were conducted with teachers and 15 focus groups were completed with students.

Documents. Documents included the 1998, 1999, 2000, and 2001 annual school reports, the 1998 evaluation of the Middle States Association, workplace survey (for teachers) results for 2001 and 2002, a comprehensive student survey for 2001, briefing papers related to student performance on standardized examinations, teacher performance review sheets, and the strategic plan for the entire school (which includes an elementary and high school, along with the middle school).

Data Analysis Procedures

As mentioned earlier, this study was conducted over a period of two years by four researchers. Analysis began simultaneously with the start of the study and continued until all data were collected. Data analysis procedures involved each of the researchers reading and re-reading the interview transcripts, observation field notes, and a variety of school documents. Qualitative analyses were conducted on student achievement data utilizing the Educational Records Bureau (ERB) Writing Assessment Program results, and the Comprehensive Testing Program III (Reading and Math) results.

To ensure the trustworthiness of our results, we used triangulation of data from interviews, observations, and documents. Likewise, we returned to the participants (the school's teachers and administrators) for a presentation of our findings. One researcher served as recorder during the ensuing conversation. Data from this exchange were folded into our final conclusions.

The Portrait

According to NSSE (1998) the "school's profile should provide a purposeful collection of the critical domains of information that tell the story of the school" (p.1-1). A composite portrait of the faculty, students, and classrooms from which data were collected for this study follows.

Faculty

The selection of teachers employed a purposive sampling strategy. Criteria were simply that (a) the participating teachers currently taught at this middle school and (b) they reported directly to the middle school principal. Figure 1 depicts the breakdown of teachers by gender and ethnicity.

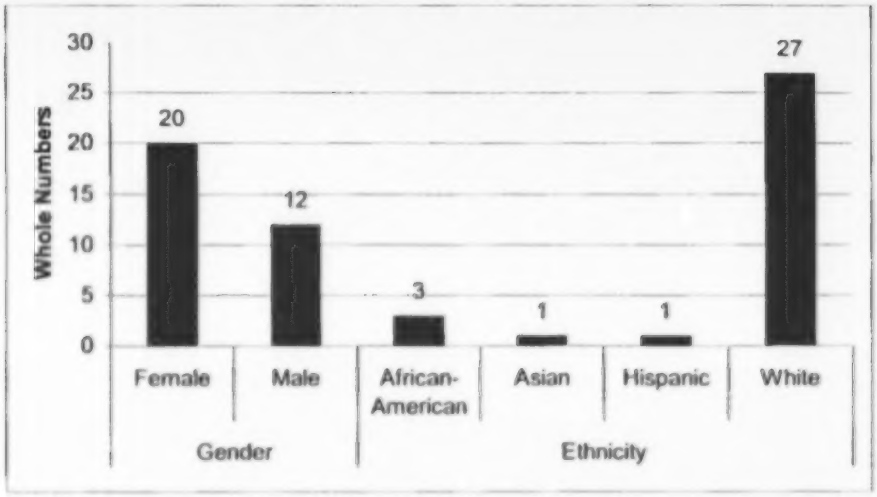

Figure 1. Teacher Characteristics

The typical middle school in this region of the United States is staffed predominantly with teachers who hold elementary certificates. The average teacher at this middle school is certified in elementary education, holding a bachelor's degree, having 14.5 years of teaching experience, and 29.8 professional development credits. Teachers at this middle school bring unique expertise holding certificates in a variety of subject-specific areas (see Table 2).

Of the 16 teachers with bachelor's degrees, 50% (8 teachers) received their degrees in or before 1990. Six of the ten master's degrees were issued in or before 1990 (see Table 2). Teacher credits earned in professional development range from .7 to 84.1. Collectively the faculty has earned over 835.9 hours of professional development.

Table 2

Composite Portrait of Faculty by Certification Area

Area of Certification	*Number of Teachers*
Educational Administration	1
Elementary Education	11
Special Education	1
Superintendent	1
Subject Specific: e.g., Biology, Mathematics, History	17
No Area of Certification Given	7

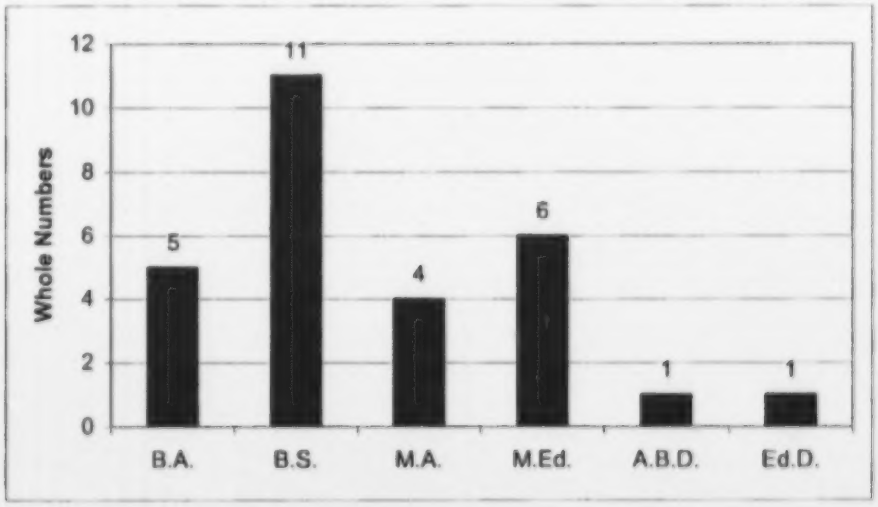

Figure 2. Degree Breakdown

The most senior faculty member was hired in 1965 (38 years of service) with two more faculty members being hired in 1966 (37 years of service). The average tenure at this middle school is 14.5 years, collectively representing over 406 years of experience in education.

Student Characteristics

At the time of this study there were approximately 422 students enrolled in this middle school. Table 3 shows the racial percentage breakdown of students by grade level. As is evident, White students make up the majority in grades 6 and 8, and though their representation in grade 7 is slightly less than 50%, they still constitute the largest racial group in that grade. African Americans represent just under a third of the student body in grades 6 and 8, exhibiting slightly higher representation in grade 7 (38%). Latino students rank third in representation at this middle school, ranging from 9% in grade 7 to slightly more than 11% in grade 6. There are only five Asian students represented across grades 6 and 8, with no Asian students present in grade 7. The percentage of students identified as "Other Race" varies from just over 2% in grade 6 to a high of 7% in grade 7. Students are relatively equally represented by gender across grade levels. Finally, just under 14% of the student body receives special education services, with relatively equal percentages represented in each grade.

This middle school boasts a uniquely diverse student population of fairly high achieving students. Mean achievement at the school is generally above the national average in math and reading and tends to fairly closely mirror the suburban student average in writing. In general, while achievement patterns do differ by racial background, with White students tending to register higher standardized test scores, these differences vary by test subject and year and are in most cases smaller than racial achievement differences found nationwide by previous research. In terms of gender, females at this middle school appear to lag behind males in math achievement, while males tend to score lower on assessments of writing, though these differences also vary by testing grade.

Students categorized as receiving special education services have consistently performed substantially below the level of regular education students on all assessments and in all grade cohorts.

Table 3

Student Demographics

Race	Grade/Cohort			
	6	7	8	Total %
White	54.9	45.8	53.1	51.2
AfricanAmerican	30.1	38.0	28.6	32.2
Latino	11.3	9.2	10.9	10.4
Asian	1.5	0	2.0	1.2
Other Race	2.3	7.0	5.4	5.0
Female	52.6	50.7	53.1	52.1
Special Ed	12.8	14.8	13.6	13.7
Total No. of Students	133	142	147	422

Though this middle school has experienced recent upward trends in achievement across subject areas, some portion of this increase appears to be due to student mobility patterns. Of all students who took the 5th grade writing, math, and reading assessments between Spring 2000 and 2002, the years in which the three current grade cohorts (6th through 8th graders) tested, students who withdrew from school prior to the present academic year (2002-2003) tended to exhibit lower achievement test scores than those who have remained through the 8th grade (see Table 4). Moreover, newly enrolled students—those who have enrolled directly into the middle grades (6-8)—tend to earn

higher test scores, on average, than students who first enrolled at this middle school in the elementary (K-5) grades (see Table 5). Therefore, both withdrawal patterns and new admission patterns tend to boost achievement at this middle school when analyses are conducted at the school and grade cohort levels (see Table 6).

Table 4

Mean NCE Scores in Writing, Math, and Reading By Testing Grade and By Cohort (Number of students testing in parenthesis)

Assessment	*Testing Grade*	*Current Grade/Cohort*		
		6th	7th	8th
ERB Writing	5th	51.26 (98)	51.67 (78)	46.62 (66)
	6th	----	51.74 (111)	45.50 (85)
	7th	----	----	49.97 (118)
CTP-3 Math	5th	60.09 (98)	61.77 (76)	53.98 (65)
	6th	----	65.30 (108)	61.39 (83)
	7th	----	----	62.86 (119)
CTP-3 Read.	5th	65.86 (98)	63.48 (75)	60.68 (65)
	6th	----	67.89 (109)	65.03 (83)
	7th	----	----	58.66 (119)

Table 5

Comparison of Mean NCE Scores for Withdrawing and Remaining Students (all students taking the 5th grade assessments 2000-2002)

Assessment	Status	No. of Students	Mean (S.D.)	t
CTP–3 Reading (5th Grade)	Remaining	242	64.03 (14.11)	1.42
	Withdrew	32	60.29 (13.45)	
CTP–3 Math (5th Grade)	Remaining	243	59.06 (13.21)	1.80*
	Withdrew	30	54.60 (8.32)	

*p<.10 (two-tailed)

Table 6

NCE Scores By Time of Enrollment (all students)

Assessment	Testing Grade	Students Enrolling	No. of Students	Mean (S.D.)	t
ERB Writing	6th	K-5	143	48.54 (18.15)	-.65
		6-8	53	50.38 (16.11)	
ERB Writing	7th	K-5	65	47.68 (13.06)	-2.07*
		6-8	53	52.78 (13.60)	
CTP-3 Math	6th	K-5	139	62.39 (13.00)	-2.14**
		6-8	52	66.83 (12.14)	
CTP-3 Math	7th	K-5	65	59.90 (11.93)	-2.94***
		6-8	54	66.42 (12.22)	
CTP-3 Read.	6th	K-5	139	66.03 (15.44)	-.93
		6-8	53	68.29 (14.04)	
CTP-3 Read.	7th	K-5	65	55.30 (13.96)	-2.97***
		6-8	54	62.69 (13.02)	

Analysis of individual student achievement trends was able to shed more light on student achievement patterns and the school's probable influence on these patterns. Individual level analyses examined the performance over time by grade cohort of only those students who were present for both the baseline and most recent test

administrations. The results of these analyses presented a mixed picture of achievement gains and losses over time (see Table 3 and Table 7). For both the current 7th and 8th grade cohorts, students significantly improved their math performance over time (see Table 8 and Figure 4). Math gains were evident across baseline performance subgroups, although the findings indicate that it is the lowest performing students (on the baseline/5th grade CTP-3 Math assessment) who demonstrably benefit the most exhibiting very large increases in math achievement from 5th to 7th grade. Students in the current 8th grade cohort experienced significant losses in achievement across this time period, however, and losses were, by far, the greatest for students who initially scored high in the distribution of baseline test scores.

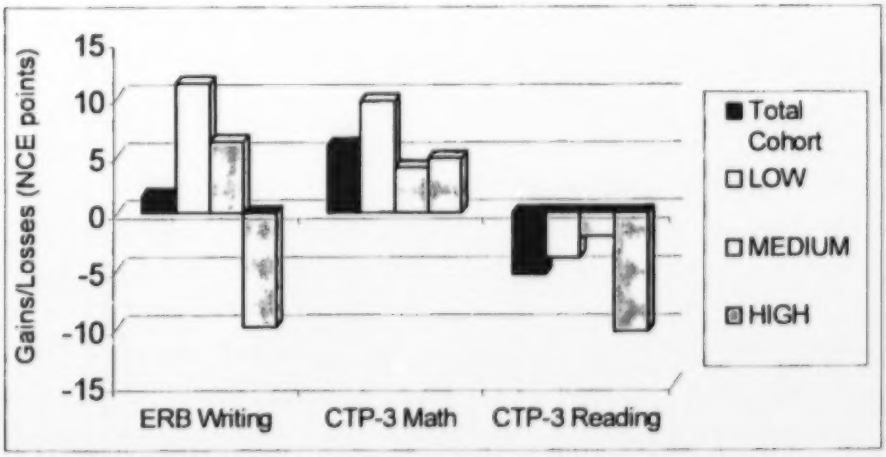

Figure 3. NCE Gains/Losses—8th Grade Cohort

Table 7

Mean NCE Score Gains/Losses By Performance Subgroup for the Current 8th Grade Cohort (Nos. of student in parentheses)

Assessment	Performance Subgroup		5th Grade Test	7th Grade Test	Difference (Gain + / Loss -)
ERB Writing	Total Cohort	(n=64)	46.63	48.13	+1.50
	LOW	(n=20)	32.09	43.35	+11.26***
	MEDIUM	(n=19)	43.69	49.92	+6.23**
	HIGH	(n=25)	60.49	50.60	-9.89***
CTP-3 Math	Total Cohort	(n=65)	53.98	59.90	+5.92***
	LOW	(n=19)	41.83	51.56	+9.73***
	MEDIUM	(n=23)	52.36	56.30	+3.94**
	HIGH	(n=23)	65.63	70.38	+4.75***
CTP-3 Read.	Total Cohort	(n=65)	60.68	55.30	-5.38***
	LOW	(n=18)	47.49	43.59	-3.90**
	MEDIUM	(n=25)	57.38	55.29	-2.09
	HIGH	(n=22)	75.21	64.89	-10.32***

*p<.10, **p<.05, ***p<.01 (two-tailed)

Table 8

Mean NCE Score Gains/Losses By Student Background for the Current 8th Grade Cohort (Nos. of students in parentheses)

Assessment	Race			Gender		LAT Status	
	White (n=29)	Afr.Am. (n=26)	Latino (n=7)	Female (n=34)	Male (n=31)	LAT (n=18)	Reg. Ed. (n=18)
ERB Writing	-.64	+1.78	+9.91*	+.74	+2.32	-2.04	+2.79
CTP-3 Math	+6.18***	+4.05***	+14.11***	+4.75***	+7.20***	+7.12**	+5.46***
CTP-3 Reading	-5.09**	-6.87***	+2.33	-5.74**	-4.99***	-6.37	-5.00***

*p<.10, **p<.05, ***p<.01 (two-tailed) [Student numbers may differ slightly by assessment]

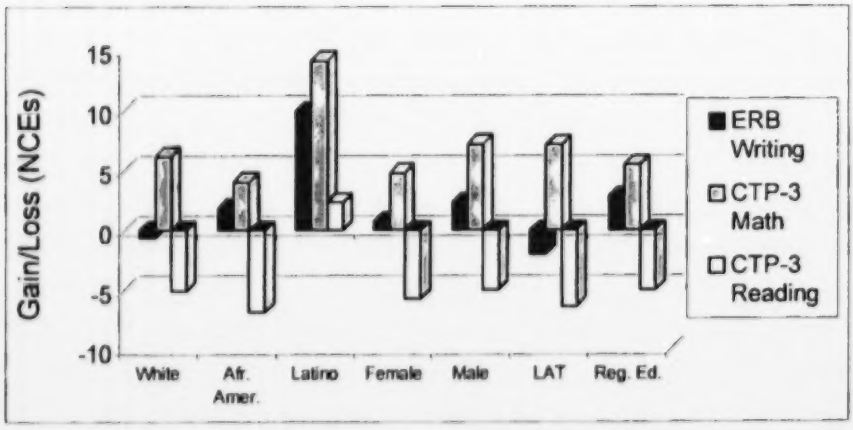

Figure 4. Mean NCE Gains/Losses by Student Background Characteristics for the 8th Grade Cohort

However, reading losses differed substantially by grade cohort. Although students in the 8th grade lost significant ground in reading, students in the current 7th grade cohort made significant gains in reading (see Table 9 and Figure 5). Writing achievement

remained fairly static for students in both the 7th and 8th grade cohorts, though this finding belies strong patterns of variation by baseline performance subgroups. Students performing at lower levels on the baseline/5th grade ERB Writing assessment made large achievement gains by 7th grade, while initially higher achieving students lost substantial ground (see Table 10 and Figure 6). This finding was particularly strong for students in the current 8th grade cohort.

Table 9

Mean NCE Score Gains/Losses By Performance Subgroup for the Current 7th Grade Cohort (Nos. of students in parentheses)

Assessment	Performance Subgroup		5th Grade Test	6th Grade Test	Difference (Gain + / Loss -)
ERB Writing	Total Cohort	(n=77)	51.46	51.51	+.05
	LOW	(n=23)	33.50	39.03	+5.53
	MEDIUM	(n=30)	53.24	53.45	+.21
	HIGH	(n=24)	66.45	61.06	-5.39
CTP-3 Math	Total Cohort	(n=75)	61.85	64.51	+2.67***
	LOW	(n=25)	49.40	51.99	+2.59
	MEDIUM	(n=27)	60.17	64.11	+3.94***
	HIGH	(n=23)	77.34	78.59	+1.25
CTP-3 Read.	Total Cohort	(n=74)	63.39	67.01	+3.62***
	LOW	(n=27)	51.28	56.42	+5.14***
	MEDIUM	(n=24)	60.95	64.05	+3.10
	HIGH	(n=23)	80.14	92.52	+2.38

*p<.10, **p<.05, ***p<.01 (two-tailed)

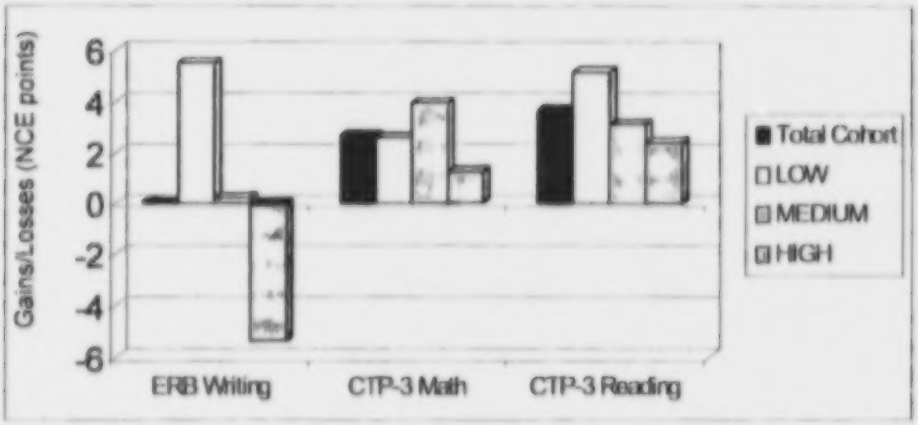

Figure 5. Mean NCE Gains/Losses By Performance Subgroup for the Current 7th Grade Cohort

Table 10

Mean NCE Score Gains/Losses By Student Background for the Current 7th Grade Cohort (Nos. of students in parentheses)

Assessment	Race			Gender		LAT Status	
	White (n=34)	Afr.Am. (n=33)	Latino (n=6)	Female (n=40)	Male (n=35)	LAT (n=16)	Reg. Ed. (n=59)
ERB Writing	+2.82	-3.55	-1.28	+2.82	+3.26	-1.46	+.45
CTP-3 Math	+2.66**	+1.46	+7.35	+4.52***	+.55	+1.27	+3.04***
CTP-3 Reading	+4.38***	+1.70	+4.73	+3.72**	+3.51**	+2.71	+3.87***

*p<.10, **p<.05, ***p<.01 (two-tailed) [Student numbers may differ slightly by assessment]

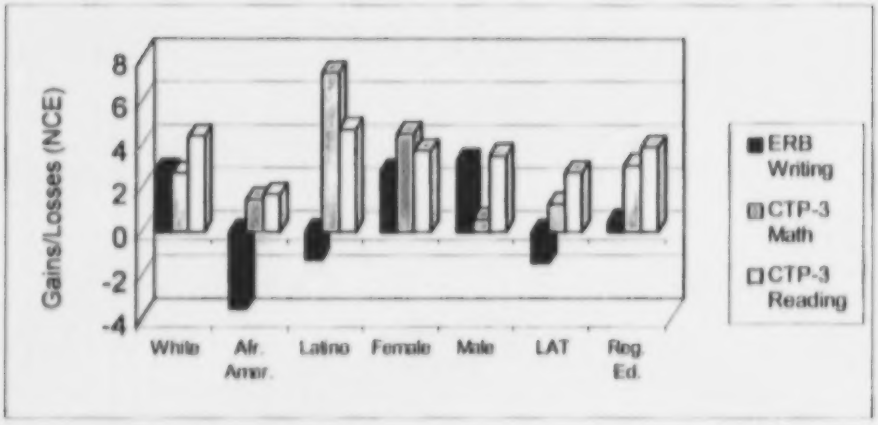

Figure 6. Mean NCE Gains/Losses By Students Background for the Current 7th Grade Cohort

Finally, a closer examination of the differences in reading trends between the current 7th and 8th grade cohorts revealed that, in fact, students in both cohorts made similar reading and math gains from the 5th to the 6th grades (see Table 11 and Figure 7). However, for the current 8th grade cohort (which is the only cohort to have taken the 7th grade assessments), achievement trends stagnated in math and reversed themselves significantly in reading between 6th and 7th grades (see Table 12 and Figure 8). This post-6th grade decline in reading scores is puzzling and should constitute an important area of further investigation by the teachers and administration.

Table 11

Achievement Trends for the Current 8th Grade Cohort: Students Present in All Three Years

Assessment	Grade of Test Administration		
	5th Grade	6th Grade	7th Grade
ERB Writing (n=65)[a]	46.63	45.11	48.13
CTP-3 Math (n=62)	53.98	59.63	59.90
CTP-3 Read. (n=65)	60.68	64.38	55.30

[Student numbers for the 7th grade assessments are reported. These numbers slightly differed from the 5th grade test administration only.]

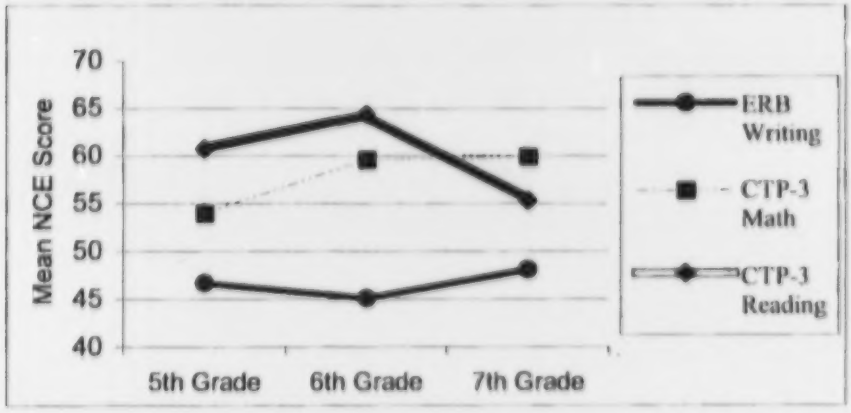

Figure 7. Achievement Trends for the Current 8th Grade Cohort: Students Present in All Three Years

Table 12

Achievement Trends for the Current 8th Grade Cohort: Students First Enrolling in 6th Grade Only

Assessment	Grade of Test Administration		
	5th Grade	6th Grade	7th Grade
ERB Writing	----	46.61	53.37
CTP-3 Math	----	66.59	67.63
CTP-3 Reading	----	66.95	61.51

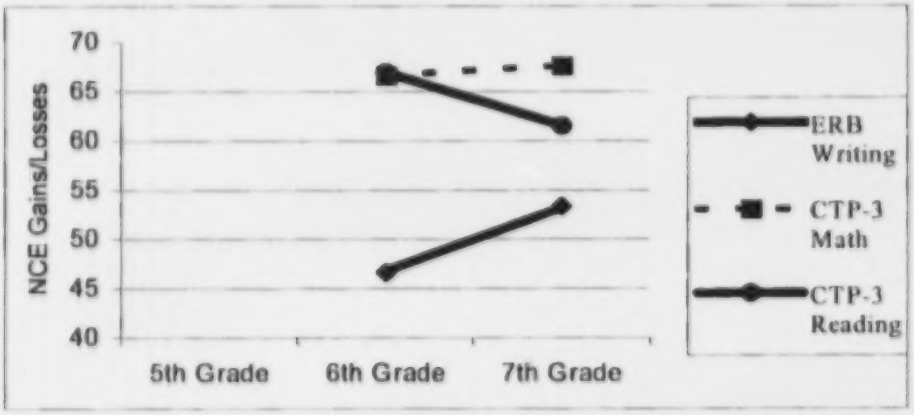

Figure 8. Achievement Trends for the Current 8th Grade Cohort: Students First Enrolling in 6th Grade Only

Classroom Characteristics

Thirty-two classes were observed during 2001. An additional 12 classrooms were observed in November 2002. The *Instructional Practices Inventory* developed by Valentine and Painter (1998) provides observational data about the nature of teaching practices across the school. An observer systematically observes classes throughout the school and develops a schoolwide profile of instructional practices. The six categorizations of instructional practices include:

1. **Active Learning/Active Teaching** instructional practices include authentic project work, cooperative learning, hands-on learning, demonstrations, active research, and the use of higher-order thinking skills.
2. **Teacher-Led Conversation** instructional practices include active conversations with all or nearly all students engaged in the conversation. All relevant student ideas are encouraged and discussed. The conversations are teacher-led, but not teacher-directed.
3. **Teacher-Led Instruction** instructional practices include lecture, question and answer time, the teacher giving directions, and video instruction with teacher interaction. Discussion may occur, but instruction comes primarily from the teacher.
4. **Student Seatwork/Teacher Engaged** practices include student completing worksheets, bookwork, tests, individual reading, and independent work while the teacher provides assistance to individuals or groups of students. The teacher is present among the students and working with or helping them.

5. **Student Seatwork/Teacher Disengaged** instructional practices include students completing worksheets, bookwork, tests, individual reading, independent and independent work while the teacher is doing something not related to the learning task of the students. The teacher is not working with or helping students.
6. **Total Disengagement** has no instructional practices associated with it. Neither students nor the teacher are engaged in activities associated with learning relevant curriculum.

Analysis of the data from the *Instructional Practices Inventory* revealed that 56.25% of the classes that were observed can be characterized under the category of "Teacher-directed Instruction" with 37.5% fitting into the subcategory of "Teacher-led Instruction" and 18.75% under "Student Seatwork/Teacher Engaged." 24.5% of the observed classed were evaluated as "Active-learning/Active Teaching." Figure 9 graphically depicts the results of this inventory.

The *Classroom Observation Protocol* allows an observer to rate instruction according to lesson design, implementation, subject area content, and classroom culture. Each of these areas has key indicators. For example, under the category of "implementation" key indicators include: (1) the pace of the lesson was appropriate for the developmental levels/needs of the students and the purposes of the lesson, (2) the teacher took into account the prior knowledge of students, and (3) the lesson was modified as needed based on teacher questioning or other student assessments. Each class was assessed according to the 28 key indicators using a Likert scale that ranged from 1-5 with 1 being "not at all" and 5 representing "to a great extent." At the conclusion of each

classroom observation each class was rated using a capsule description related to the quality of the lesson. This capsule rating ranged from 1 (ineffective instruction) to 5 (exemplary instruction). The mean scores for each of the categories are presented in Table 13.

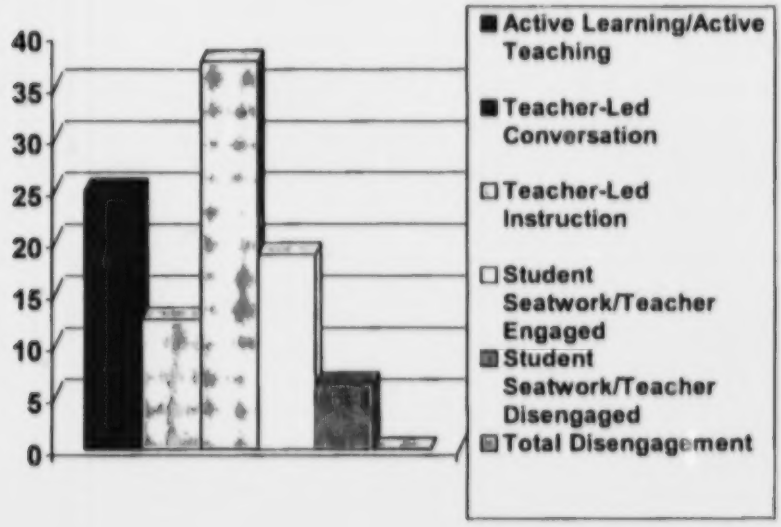

Figure 9. Instructional Practices Profile

Table 13

Mean Score Ratings from the Classroom Observation Protocol (n=44)

Category from Classroom Observation Protocol	**Mean Score 1 = Not At All / 5= To A Great Extent**
Design	3.75
Implementation	2.14
Subject Area Content	3.53
Classroom Culture	4.07
	1= Ineffective Instruction / 5=Exemplary Instruction
Capsule Description	3.4

School Climate

In the initial phase of data collection (starting January 2001) there was strong evidence that the teachers at this middle school feel both a professional commitment and a sense of faculty unity in quest of a quality program for the students. One teacher offered, "I felt more confident because I helped to plan some of the activities during the summer." The concern, interaction, and visibility by the principal towards staff members and students are reported in various patterns. Especially gratifying to the teachers seems to be recognition of the energies needed and given to the successful team concept, as mentioned by one teacher: "I love [this school]. There is a very diverse group of teachers. Some teachers have a wealth of knowledge about standards and some do not. The people here CARE—teachers are very supportive." The students realized the quality of the program is of great importance, as one student offered: "Student achievement is very important. The teachers encourage you. They talk about standards and benchmarks. They do stuff for us for good grades. They get disappointed with bad grades."

Yet a continuing quest to realize the full achievement potential among students as learners continues to frustrate many staff members. One teacher commented about the number of interruptions to the teaching and learning process: "There has got to be a better balance: teachers are quality teachers, yet the interruptions to classes prohibit quality instruction—students need consistency." While most students recognized the support given by teachers, many continued to sense that some teachers needed to extend more visible signs of caring. Data collected through a two-part workplace survey (See Appendix) offered some insight into the discontent. Nine items on part one of the survey (see Table 10) and 11 items on part two of the survey (see Table 11) depict the degree to

which teachers felt that the quality of life, job satisfaction, and sense of efficacy capture their experience.

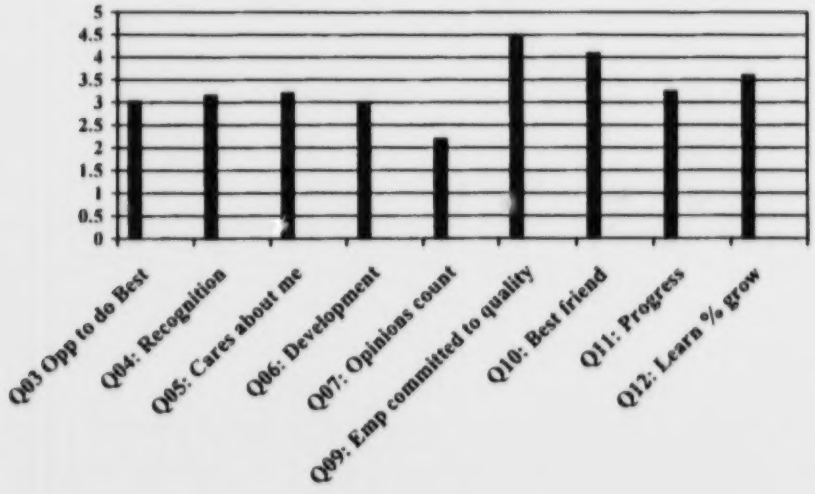

Figure 10. Workplace Survey Part One: Overall Satisfaction

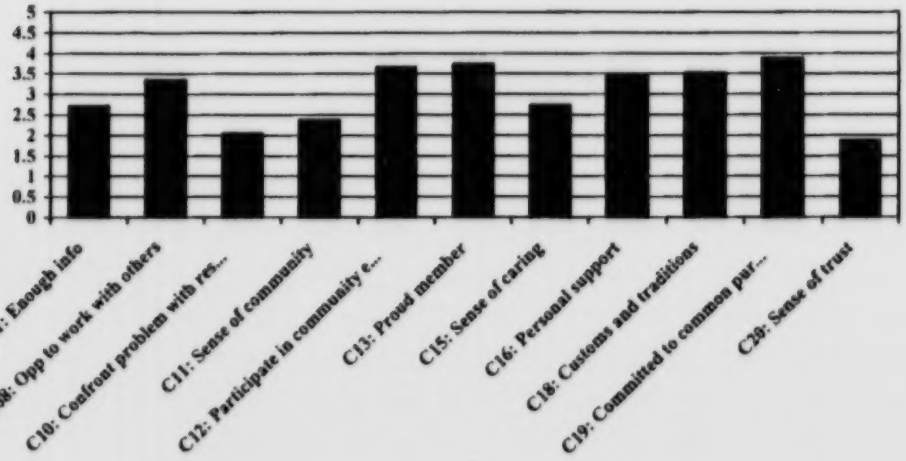

Figure 11. Workplace Survey Part Two: Client-Specific Strategies

The first question (Q00) on the workplace survey asks: How satisfied are you with this school as a place to work? Teachers almost universally agreed that this middle school is a unique and extremely positive place to work. Subsequent answers to items—e.g., Q01 (I know what is expected of me at work.) and Q08 (The mission or purpose of my organization makes me feel my job is important)—confirmed their positive experience.

The faculty recognized the multiplicity of supports in its many and varied patterns. The request for supportive materials, leadership, diverse strengths of fellow team members, supportive student services are all mentioned in positive terms. Nevertheless, the abundance of dated instructional materials and the limited acquaintanceship with organizational and instructional options prove to be a major issue of stress. Paperwork demands and the challenge of strong communication with middle school students as well as among colleagues is a stated continuing challenge. Figure 12 depicts the responses (based on a five-point Likert scale) teachers offered to the following survey items:

Q02. I have the materials and equipment I need to do my work right.

C02. I am informed about changes and events that affect me before decisions are made.

C03. The reasons behind decisions are explained to me.

C04. I understand the process of making decisions in our school.

C05. In the last six months, I participated in a decision that made a difference in our school.

C06. Members of this organization DON'T seem to get caught up in "turf" battles.

C07. At this school we work together to meet the needs of students.

C09. Within my department, I am consulted whenever decisions are to be made that affect my job.

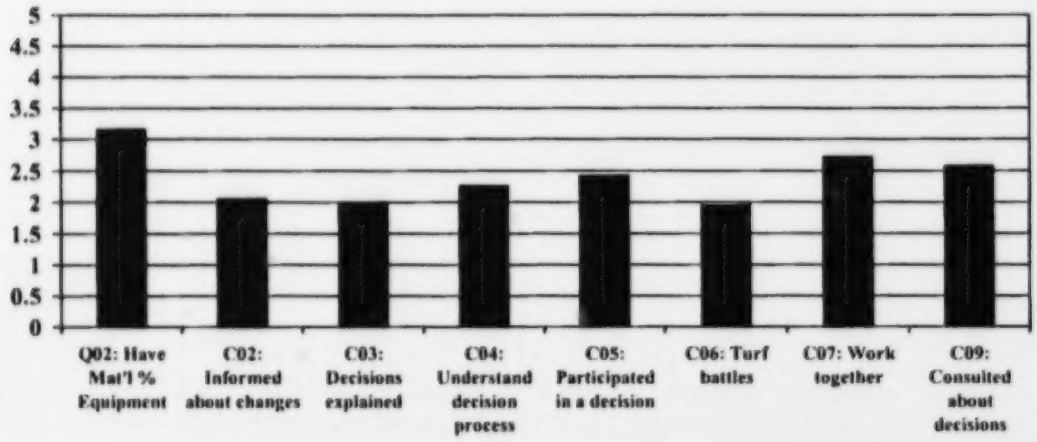

Figure 12. Supports, Resources, and Stressors

In 2002 there was a noticeably different picture being painted by the faculty and students relative to school climate. Faculty reported a complete lack of trust in the principal of the middle school. Teachers labeled issues related to school climate as the "biggest challenge" facing the school, which was characterized as having a "climate of distrust." In 2002, according to the workplace survey results, teachers reported:

- not receiving recognition or praise for doing good work (88%)
- not feeling like their opinions count (69%)
- not knowing what was expected of them (62%)
- not having the opportunity to do what they do best everyday (61%).

Fifty-nine percent of the teachers reported that members of the school were caught in turf battles and 69% admitted that when [problems] are confronted people are not always respected in the process. Sixty-nine percent also responded that there is no sense of community at the school. One of the most revealing survey items, "we work together to meet the needs of students," received a split vote of 49% disagreeing with 51% agreeing.

In the individual and focus group interviews teachers were able to comment more fully on their beliefs and perceptions. Some of the typical comments included:

- *People are shutting down and not speaking for fear of consequences.*
- *A lot of negative energy has been directed toward the school administration and not toward the school.*
- *The principal tries to catch people doing wrong.*
- *There is fear of reprisal.*
- *Test data are used to judge teachers rather than students.*

Students noted that the principal was visibly more absent from the school. In 2001 they commented that he could be seen going in and out of classrooms and that he made every effort to learn students' names. Now they commented, "We never seen him" and " He only knows the names of the kids who get in trouble."

Findings

This section focuses on two areas: the areas that were targeted for school improvement based on the school portrait and the impediments or barriers to school improvement.

Areas Targeted for School Improvement

After the school portrait was presented to the faculty and administration of this middle school, the faculty met and agreed on the following areas that needed improvement.

(1) Instructional Implementation:

a. greater individualization of instruction in classrooms to address the diverse learning and socio-emotional needs of students;

b. greater classroom utilization of student-engaged instructional practices, such as active learning/active teaching (cooperative learning, authentic projects, hands-on learning, active research) and teacher-led conversation, rather than more teacher-directed instructional practices; and,

c. explore more completely the decline in reading scores that occurs after sixth grade.

(2) Curriculum Articulation:

a. increased and regular communication among teachers, by subject and by grade levels for greater horizontal articulation within the school; and,

b. greater vertical articulation with the elementary school that feeds the middle school and with the high school to which student progress.

(3) School Climate:

a. work to build greater trust among teaching and administrative staff; and,

b. work to increase the teachers' sense of job satisfaction and efficacy.

(4) Reduce Pace of Reform:

a. seek to implement instructional, curricular, and administrative reforms more gradually and consistently; and,

b. provide more targeted, needs-specific professional development opportunities that are well aligned with and specifically designed to support ongoing reform initiatives.

(5) Address Changing Student Body Characteristics:

professional development needs to be geared toward preparing teachers to more effectively instruct in classrooms characterized by increased levels of variation in students' academic and socio-emotional needs.

(6) Non-Teaching Work Load:

Implementation of administrative measures to reduce, consolidate, and better coordinate non-teaching responsibilities and duties.

(7) Communication:

a. improvements in overall communication within the school and between the school and its external community; and,

b. greater inclusion of teachers and staff in administrative decisions that directly impact teaching and staff-level jobs and the environment in which they work.

Impediments to School Improvement

Hopkins et al. (1996) discussed difficulties that tend to occur for both teachers and administrators when initially embarking on school improvement. Teachers may be

faced with the need to acquire new teaching skills or with mastering new curriculum material. The school may be forced into new ways of working and organizing for instruction that are incompatible with existing organizational structures and traditions. O'Day (2002) likewise discussed barriers to improvement in schools and listed too much or too little information, the complexity and the problem of attribution in schools (cause and effect relationships are sometimes hard to uncover), and faulty incentive and resource allocation structures as areas to watch.

In reference to the middle school discussed in this paper, two key impediments to school improvement were evident. One of these was internal to the school and the other an external factor. The internal factor involved the inability of the principal to effectively provide leadership for the faculty and to get them to completely accept the value of school improvement planning. In many ways the principal never truly understood the culture of the school he inherited after three principals came and went in quick succession. The external factor had to do with the context of this middle school. It is embedded in a larger educational environment/organization that serves K-12 students. In addition to leadership from the middle school principal, major decisions were being made at a higher level of the larger school's administration that affected life in the middle school. For the past eight years major reforms were introduced at the school and a pattern of partial implementation, teacher and staff resistance, and removal of the reform initiative was established. In many ways the teachers at this middle school "fit" the principal and school improvement planning into this pattern.

As school improvement efforts moved through the steps proposed by NSSE (1998, see Review of Literature) the faculty and administration of this middle school

were able to paint a portrait (profile) using school-based data, to refine their beliefs and mission statement, to identify the desired results for student learning, and to analyze the instructional and organizational effectiveness through identifying the areas in need of improvement. But the process of school improvement came to a grinding halt as plans were being made to develop the action plan. The administration of the entire school (elementary, middle and high) was replaced and the principal of the middle school was asked to resign before the end of the school year. The real push behind improvement planning no longer existed and the effort was abandoned.

Conclusion

School improvement research has made significant contributions to the theory and practice of school-level change. In particular, it has:

- endorsed the centrality of professional development targeted in areas identified through the improvement process,
- emphasized the classroom and student learning as the central focus of educational change initiatives,
- highlighted the importance of utilizing empirical data,
- focused attention on the importance of school culture and context,
- demonstrated the necessity of a well articulated and rigorous curriculum, and
- emphasized the need for the involvement of all stakeholders.

What has become painfully obvious from this study is the necessity for effective leadership to nurture and guide the process of improvement, especially in contexts that are not conducive to improvement efforts. As with so many educational reforms, when

there is a change in senior leadership (principal or superintendent) efforts are abandoned as new bandwagons pass by.

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Appendix

Workplace Survey

Part One: Overall Satisfaction

Q00 How satisfied are you with this school as a place to work?
Q01 I know what is expected of me at work.
Q02 I have the materials and equipment I need to do my work right.
Q03 At work, I have the opportunity to do what I do best every day.
Q04 In the last seven days, I have received recognition or praise for doing good work.
Q05 My supervisor, or someone at work, seems to care about me as a person.
Q06 There is someone at work who encourages my development.
Q07 At work, my opinions seem to count.
Q08 The mission or purpose of my organization makes me feel my job is important.
Q09 My associates or fellow employees are committed to doing quality work.
Q10 I have a best friend at work.
Q11 In the last six months, someone at work has talked to me about my progress.
Q12 This last year, I have had opportunities at work to learn and grow.

Part Two: Client-Specific Strategies

Q01 I get enough information to do my job well.
C02 I am informed about changes and events that affect me before decisions are made.
C03 the reasons behind decisions are explained to me.
C04 I understand the process for making decisions in our School.
C05 In the last six months, I participated in a decision that made a difference in our School.
C06 Members of this organization DON'T seem to get caught up in "turf" battles.
C07 At this school, we work together to meet the needs of students.
C08 I have the opportunity to work with people in other departments to carry out School programs.
C09 Within my department, I am consulted whenever decisions are to be made that affect my job.
C10 At this school, we confront problems in a way that respects the people involved.
C11 There is a sense of community at this school.
C12 In the last two months, I chose to participate in a school community event.
C13 I am proud to be a member of this school community.
C14 I feel safe in this school's environment.
C15 There is a sense of caring for people at this school.
C16 In the last two months, I received personal support from a school community member.
C17 I value the customs and traditions of this school.
C18 The customs and traditions at this school contribute to a sense of community.
C19 At this school, my fellow employees are committed to a common purpose.
C20 There is a sense of trust within the school community.

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